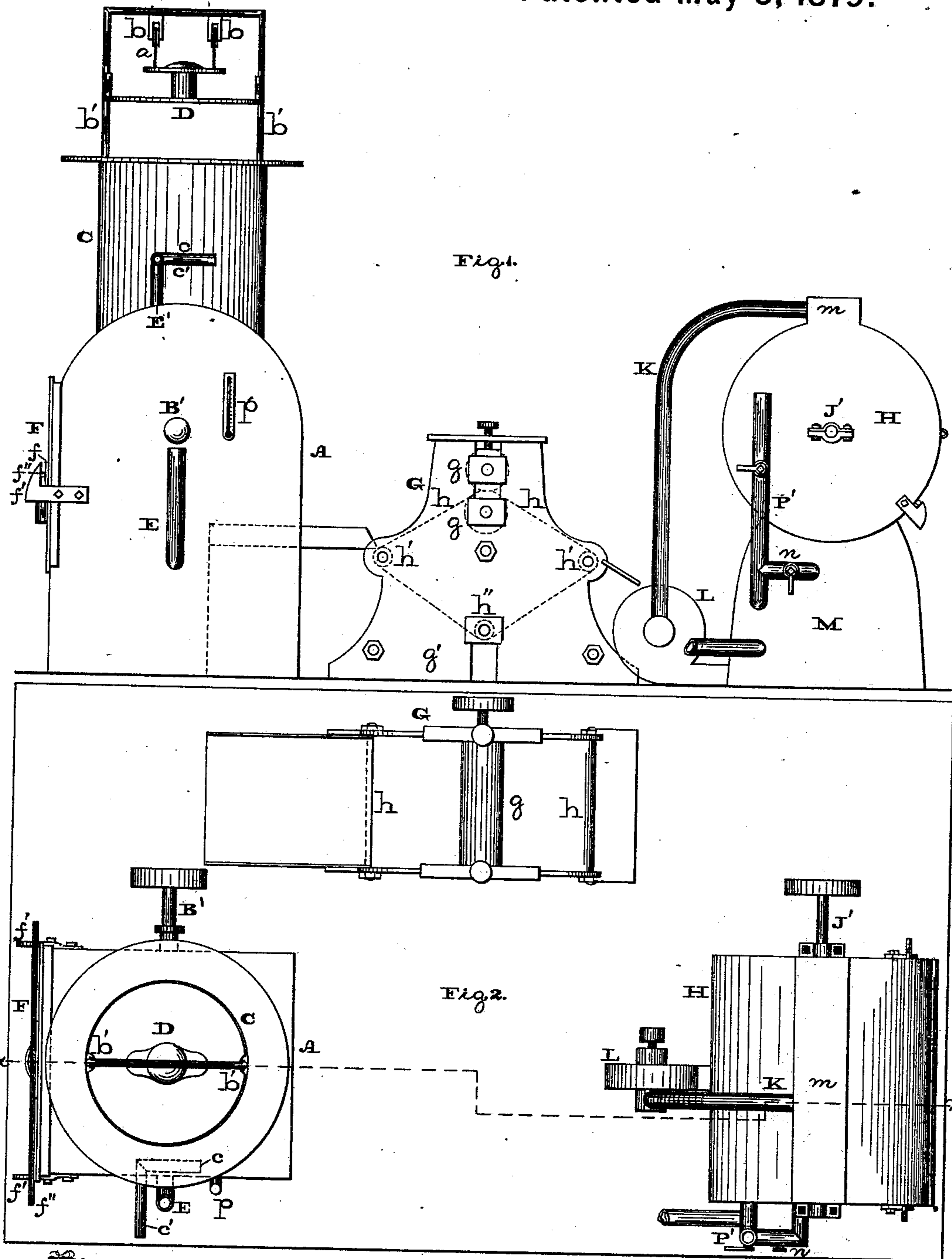


E. SCHMIDT.  
Feather-Renovator.

No. 215,167.

Patented May 6, 1879.



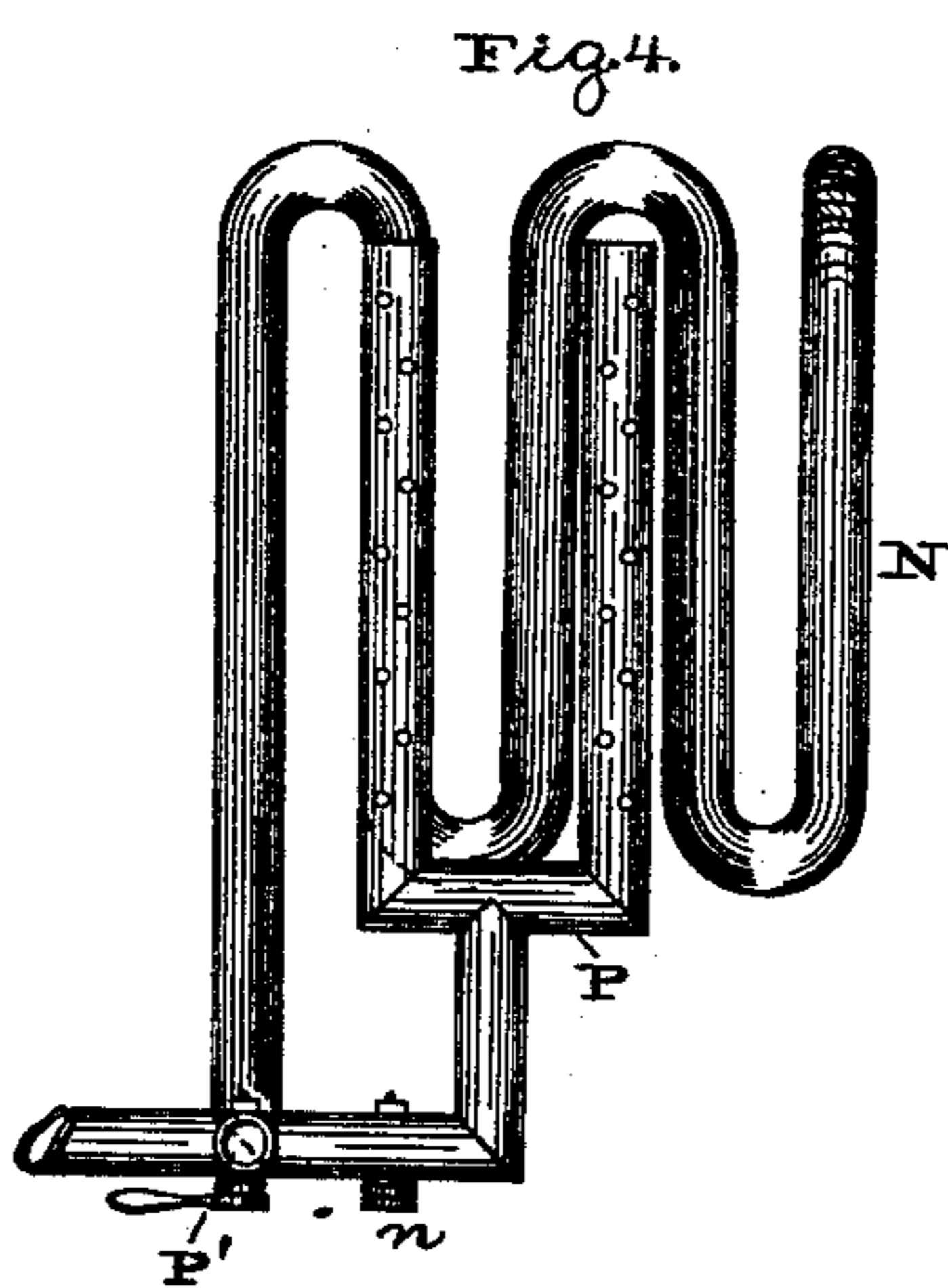
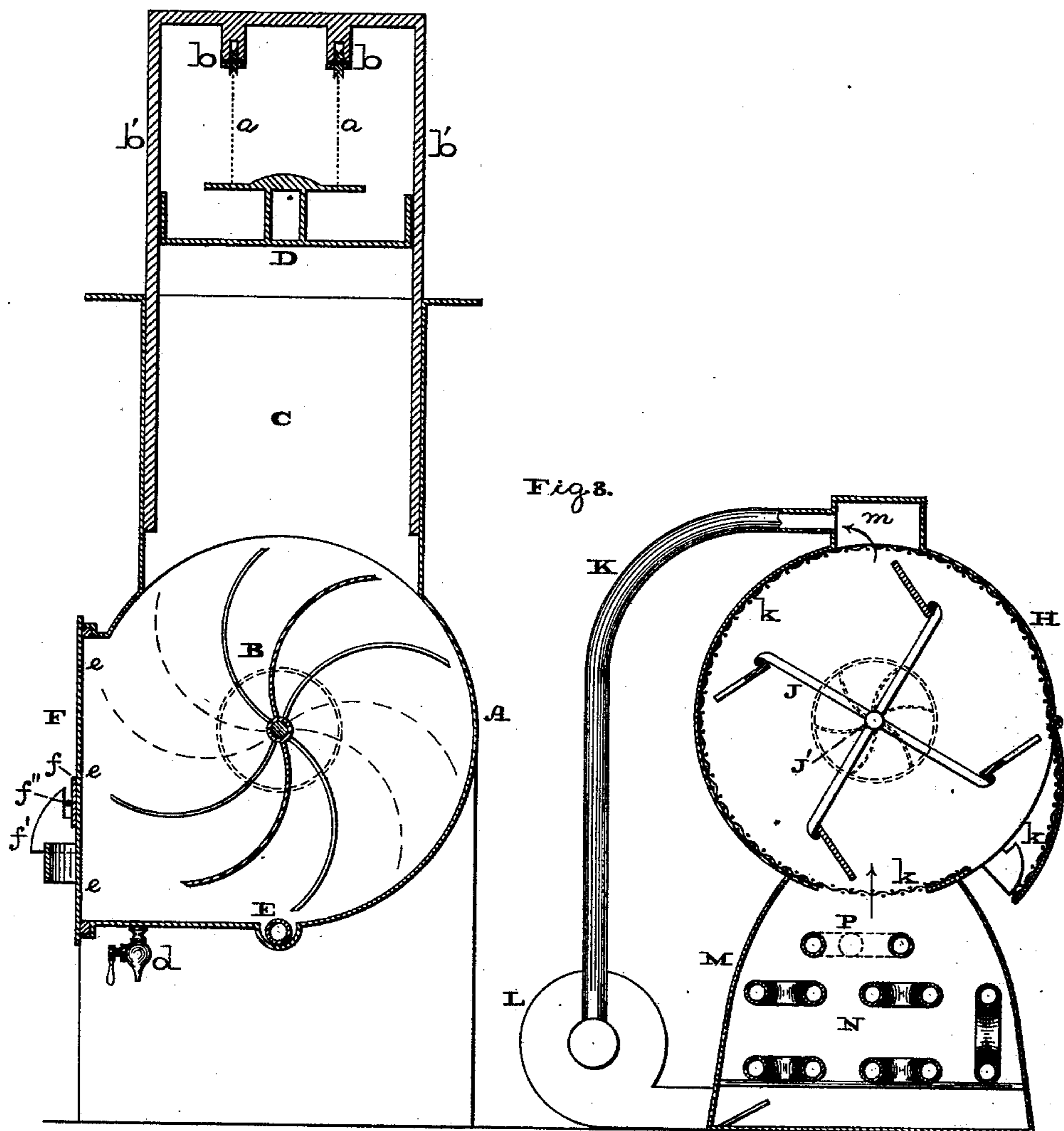
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# UNITED STATES PATENT OFFICE.

EDWARD SCHMIDT, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **215,167**, dated May 6, 1879; application filed February 10, 1879.

*To all whom it may concern:*

Be it known that I, EDWARD SCHMIDT, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Preparing and Renovating Feathers, Hair, &c., which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the apparatus embodying my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a longitudinal vertical section in line *x x*, Fig. 2. Fig. 4 is a top view of a detached portion.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a feather-renovator having a tower communicating with the steaming or boiling chamber, and provided with a rising and falling cover, whereby the feathers may be readily admitted to said chamber and retained therein and heat prevented from escaping.

It also consists of the steaming-chamber having pipes for admitting both chemicals and fresh water when required, the surface or lining stretching over the spaces or communications between the connected chamber, whereby heat may be passed into and out of the main chamber without permitting the escape of the feathers.

It also consists of a chamber having an abrasive inner surface for divesting the feathers of blood, shreds, &c.

It further consists of a chamber having means for drying and discharging the prepared or renovated feathers.

Referring to the drawings, A represents a steaming or boiling chamber or cylinder properly mounted, and B a beater, which is located within said chamber, and its supporting-shaft B' receives rotary motion in any suitable manner.

Rising from the chamber A is a tower, C, which communicates with the same, and within said tower is fitted snugly a cover or cap, D, to which are connected cords or chains *a*, which pass around pulleys *b*, supported on the cross-piece of standards *b'*, secured to the tower, said standards also forming the guides for the cover or cap D.

Leading into the bottom or side of the cham-

ber A is a steam-pipe, E, and into the top thereof a pipe, E', having two branches, *c c'*. The bottom of the chamber is also provided with drip or draw-off cock *d*, for discharging the condensed steam and other fluids collected in the chamber.

F represents a door covering the outlet *e* of the chamber A, which door is securely held in position by means of a bar or projection, *f*, engaging with hooks *f'* at the sides of the chamber, and a fastening-rod, *f''*, likewise engaging with said hooks. Suitable packing is applied to the door F or walls of the chamber A, in order to provide steam-tight joints between them.

G represents a wringer or press, which consists of elastic or soft rollers *g*, mounted on a frame, *g'*, and an endless apron, *h*, which is passed between said rollers *g* and around rollers *h' h' h''*, also mounted on the frame *g'*, whereby said apron is stretched in somewhat quadrilateral form, the two upper sides inclining from the rollers *g* to the end rollers, *h' h'*.

A suitable table and platform are at opposite ends of the wringer. The construction of the wringer is no part of the present invention.

H represents a properly-supported chamber or cylinder, whose inner face is lined with gauze or other abrasive substance, as at *k*, and within said chamber is mounted a beater, J, whose shaft J' receives rotary motion in any suitable manner.

A pipe, K, communicates with the space or offset *m* at the top of the chamber H, and with a fan, blower, or conveyer, L, leading into a chamber, M, which supports the cylinder H, and contains a heating-coil, N, and steam-pipes P, the coil N and pipes P having a common inlet-pipe, P', whereby, by properly turning a cock, *n*, steam may be admitted both into said coil N and pipes P, as required.

The cylinder J communicates with the chamber M and offset *m* through the gauze *k*.

The abrasive lining *k* of the chamber H consists of gauze conforming to the cylindrical shape of said chamber and stretched across the spaces between the offset *m* and chamber H and chambers H M, thus permitting their communication without allowing escape of the feathers into said offset *m* or chamber M.

The operation is as follows: The cover or lid

D is elevated and a proper quantity of feathers dropped through the tower C into the chamber A, and said cover is then lowered so as to rest on the top of the feathers and close the tower from above. Steam is now admitted into the chamber through pipe E, and rotation imparted to the beater B. Chemicals or fluids that will destroy worms, moths, &c., such as alun and ammonia, are then introduced into the chamber by means of a pipe communicating with the branch *c*; and when the feathers have been duly treated by the hot fluid the supply of steam and chemical fluid is cut off, and fresh water run into the chamber by means of a pipe communicating with the branch *c'*, so as to wash the feathers, after which the door F is opened and the feathers are removed, they being found in soft condition. During the treatment of the feathers they are prevented from being blown through the tower by means of the cover or cap D, which also, in a measure, forms a sufficiently tight joint to prevent escape of heat. The temperature of the chamber A may be observed in a thermometer, *p*, which is suitably applied. The feathers are now subjected to the pressure of the wringer G, so as to remove the water and moisture, they being placed on the apron *h*, to which movement is imparted in any suitable manner, and they enter the rollers *g*, the water or moisture running off the inclined portion of the apron as the feathers ascend the same. After the pressure has been exerted the apron carries the feathers from the rollers, and they roll from the apron to a place of collection. The door of the cylinder H is now opened and the wet and softened feathers are placed therein and the door tightly closed. The beater J is rotated, steam admitted into the coil N, and the fan L operated. As the feathers are driven around in the cylinder J they are subjected to abrasion of the gauze or roughened inner surface, *k*, of the cylinder, and all foreign substances adhering to the feathers are removed thereby. Heat from the coil N is driven through the chamber M into the cylinder H by means of the fan or blower L, and thus the feathers are dried. The heat

is returned through the pipe K to the fan or blower, and again directed to the cylinder H, so as to be reused therein. When the feathers are about sufficiently dry the filaments will be found folded or packed on the stems. The cock *n* is turned and a few puffs of live steam are injected into the cylinder, thus spreading the filaments and imparting elasticity to the feathers. The steam is now shut off and more hot air is directed to the feathers, so as to complete the drying operation, after which the door of the cylinder is opened and the feathers fly out in a properly-prepared or renovated state.

It is evident that hair, moss, and other upholstery substances may be treated or prepared and renovated by the above means.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the feather-receiving chamber A, of the tower C, having supporting and guiding standards *b'*, and the rising and falling cover or cap D.
2. The chamber A, in combination with the inlet-pipe E', having two branches, *c c'*, substantially as and for the purpose set forth.
3. The chamber A, provided with tower C, door F, double branch pipe E', and steam-pipe E, substantially as and for the purpose set forth.
4. The chamber H, with offset *m*, chamber M, and beater J, in combination with the gauze *k*, lining the chamber H, and occupying the communicating spaces between the chamber H and the offset *m* and chamber M, substantially as and for the purpose set forth.
5. The chamber H, having beater or fan J, in combination with the chamber M, having the heating-coil N and steam pipe or pipes P, substantially as and for the purpose set forth.
6. The heating-coil N and steam-pipe P, in combination with the inlet-pipe P', common to both, substantially as and for the purpose set forth.

EDWARD SCHMIDT.

Witnesses:

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